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Moving Local Foods from Farm to Consumers: Lessons from NYS Apples

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What Is the Issue?

Consumer awareness of and interest in locally produced food has increased sharply in recent years. This interest in “buying local” stems from a variety of economic, human health, environmental, and social perceptions. But despite increasing interest in locally grown and processed food, little is known about the supply chains that move local foods from farms to consumers. To improve our understanding of the way local food products are introduced or reintroduced into the broader food system and the potential barriers that exist to expanding markets for local food, a study¹ involving 15 case studies around the U.S. was conducted. In this brief we highlight the 3 case studies focused on the New York State (NYS) apple industry.

What were the study's objectives?

Two general research questions are addressed in this study:

1. What factors influence the structure and size of local food supply chains? Here, “structure” refers to the configuration of processes, participants, and product flows as a product moves from primary production to consumers. “Size” refers to aggregate sales volume as a percentage of total food sales for a product category.
2. How do local food supply chains compare with mainstream supply chains for key dimensions of economic, environmental, and social performance?

These questions are designed to provide insight into the role of local foods in several public policies and programs. For example, federal and State policymakers, as well as local community groups and private enterprises, increasingly look to local-food projects to reduce food insecurity, support small farmers and rural economies, and foster closer connections between farmers and consumers.

How Was the Study Conducted?

As part of the larger study, we examined three supply chains for apples in the Syracuse metropolitan area: a supermarket chain (mainstream), a producer who sells at a farmers market (direct market), and a school district that purchases local apples for inclusion in school lunches (intermediated).

Mainstream Supermarket Supply Chain

The focal store belongs to a regional supermarket chain (called here SuperFoods) that operates its own distribution center. Five apple suppliers account for all apples moving through SuperFoods’

distribution center. Four of the five suppliers are vertically integrated grower/packer/shippers (GPS); two are from NYS, while two are from Washington State (WA). The fifth supplier is a broker from WA. One of the NYS suppliers provides about 35 percent of SuperFoods’ apples, delivering them via their own trailer trucks to SuperFoods’ distribution center. About 80 percent of the sales from this supplier are sourced from its own farms, and 20 percent are sourced from 20 to 25 independent NYS growers and a few importers. This supplier provides apples labeled as “local” during a 12-week apple harvest period from early September through late November. One of the WA suppliers sells apples grown on about 3,100 acres by 70 growers. Another supplier packs 85 percent of all the apples it sells.

Two factors facilitate market coordination. Under proper conditions, apples can be kept in storage longer than most produce items. Apples harvested in the fall are sometimes stored a full year, until the next harvest. As a result, suppliers know their annual inventories quite precisely once harvest is complete. Second, the supermarket chain employs an Electronic Data Interchange (EDI) system that facilitates placing orders to suppliers, monitoring product inventories, and receiving orders from the focal store.

Direct Marketing Supply Chain:

Central New York Regional Farmers Market Vendor

The Central New York Regional Market operates year round on weekends and has more than 300 vendors. This market accepts farmers selling only products from their own farms and NYS product re-sellers. In 2009, the market included 12 apple vendors: 6 farmers and 6 local, in-State resellers.

The focal vendor, Jim Jones, farms 90 diversified acres (about half planted to apples), which allows him to participate in the farmers market. Jones produces 20 different varieties, including small amounts of uncommon varieties, such as Northern Spy and Zestar. About 10 percent of Jones’s total sales are to farmers markets, and 90 percent go to a packer-shipper. In addition to the Syracuse market,

Jones sells in three other farmers markets in the region.

At the farmers market, Jones sells a wide variety of his own fruits and vegetables 3 days a week, from April through December. He staffs the market with family members. Most vendors sell apples at the same prices and in the same presentations, with little variation through the year. When asked about the economic benefits of participating in the farmers market, Jones estimates that revenues per pound are almost



twice the revenues of apples sold to the packer-shipper (\$0.50/lb and \$0.28/lb, respectively). However, it is important to note that charges for distribution activities beyond the farm gate are approximately \$0.10/lb, or 20 percent of the retail value at the farmers market. According to Jones, customers cite the most important factor in shopping at the market as the ability to buy directly from the grower, followed by the lower prices of apples relative to those at retail stores. Jones also believes that more apples could be sold if more retail space was available in the farmers market.

Intermediated Supply Chain: Hannibal (NY) School District

The Hannibal School District (www.hannibal.cnyric.org/) has three schools with a total enrollment of over 1,600 students. About 95 percent of apples in the school district are sold as part of the school menu, and the rest are sold separately à la carte. These apples come from NYS except for a small amount supplied to the school district by the U.S. Department of Defense (DOD) Fresh Fruit and Vegetable Program, usually bought from Washington State.

This apple supply chain consists of four channel members who have maintained business relationships for over 20 years: the school district, a local produce wholesaler (C's Farms), and two local farms. C's Farms (www.csfarmmarket.com/) supplies nearly 100 percent of the school district apples. C's Farms deliver fresh fruits and vegetables to 65 local restaurants, schools, and institutions in Oswego County. It plays an essential role of aggregation to make this local supply chain vibrant. The wholesaler procures apples primarily from two apple farms, each with about a 50-percent share. The apples from the DOD Program account for approximately 10 percent of total apples in the school district.

Ontario Orchards is one of the two apple suppliers to the school district via C's Farms. Ontario Orchards specializes in a large variety of locally grown produce, offering 29 apple varieties, including small amounts of uncommon varieties. It operates a small production line in which apples are washed and sized, and packed in 42-pound boxes. The owner stated that the availability of long-term storage facilities in the area has enhanced his ability to supply the school district during the academic year. No written contracts are employed between Ontario Orchards and C's Farms; the contract has been word of mouth for 20 years.

The school district has had several programs to promote apple consumption. In 2009, for example, the school district nutrition team launched a program called "The Smart Choice Café," whereby wise nutrition choices, like local produce, are featured to students. Members of this supply chain mention the sometimes unintended negative impacts of the DOD Fresh Fruit and Vegetable Program. This affects coordination in the supply chain because DOD apples, while free, do not have an established calendar for shipments.

Key Findings

Comparing the three cases suggests the following findings regarding supply chain performance:

- Producer share of the price paid by the final consumer is greatest for the direct marketing chain. The price received by the farmers

market vendor net of marketing expenses is \$0.40 per pound, substantially higher than the average grower price of \$0.26 per pound. Marketing expenses of the direct marketing chain are estimated to total \$0.10/lb or 20 percent of the retail value.

- The supplier share of the retail dollar decreases with distance to market: in the direct case, the producer's share of the retail dollar is 80 percent whereas in our mainstream case, the shares of Washington and New York suppliers are 35 percent and 47-60 percent (depending on package type) of the retail price, respectively.
- The "local" attribute does not command price premiums perhaps because NYS is a national player in the apple market. In fact, apples at the farmers market, all of which are local, usually exhibit the lowest retail prices in Syracuse. Instead premiums are often paid for differentiation by apple variety.
- Calculations indicate that local apples marketed through the direct and intermediated supply chains perform better than non-local apples in terms of food miles and fuel efficiency. Apples supplied by the mainstream supplier in Washington State have the worst fuel usage performance (1.41 gallons/cwt).
- The intermediated supply chain, where the school district organizes an extensive variety of events aimed at promoting local produce (and apples), ranks first in social capital formation. Likewise, SuperFoods participates in activities to support the local community including support to local farmers and college scholarships for its employees.

The apple supply chains described in these three cases all exhibit a high degree of diversification in their distribution strategies. Local and mainstream apples complement one another in the supermarket supply chain. In addition, the focal farmers market vendor engages in some direct marketing but is also linked to the mainstream chain through his relationship with a conventional packer-shipper. Moreover, the school district procures from mainstream suppliers and from local apple supply chains. Local supply chains are profitable and important for participating firms, even if the volume is small.

The presence of a strong industry that distributes nationally has substantially facilitated the development of local food supply chains. The NYS apple sector offers a wide variety of products to consumers regionally and nationally and, as a result, it has the postharvest infrastructure (e.g., packing, shipping, short- and long-term storage) and marketing expertise to support distribution of apples from local farms to various local retail and foodservice outlets.

The case studies underscore the high degree of competition within the apple sector as reflected by the price formation mechanisms. Final prices are generally established by the market in all supply chains considered, with the exception of a few truly uncommon apple varieties in the farmers market produced in very small quantities. In all supply chains, apple growers appear to be price takers. It is noteworthy that no price premiums were observed for local apples in any of the direct supply chains studied. It is speculated that, because New York State is a major apple producer with year-round supplies, "local" is not a significant differentiating attribute.

